



FAIRBANKS-MORSE

figure 6310

“niagara”
propeller
pumps

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Fairbanks-Morse Niagara vertical propeller pumps are especially designed for large capacity, low head pumping service. They are available for either oil or water lubrication. Their application is particularly desirable in land drainage, flood control and irrigation service, storm water disposal, low head or primary municipal pumping, dewatering of excavations, coffer dams or dry docks, and as circulating pumps in many industrial processes. Service requirements calling for reasonably portable, self-contained pumping units that can be suspended in a simple manner from a floor or structure over the water are ideally fulfilled by Niagara pumps. Designed for operation with the propeller submerged, these pumps offer the advantage of being instantly ready for service without the delay of priming. Figure 6310 Niagara propeller pumps are regularly offered in sizes from 8" to 54" for capacities up to approximately 100,000 GPM and heads up to 40 feet. Larger pumps for greater capacities and slightly higher heads can be readily built for special services.

DRIVERS—Niagara vertical propeller pumps may be arranged for electric motor, diesel or gasoline engine drivers. When the pump is to be belt-driven or direct-connected to a vertical solid shaft motor, the lineshaft is connected to a heavy ball bearing thrust assembly located on the base plate. The application of diesel or gasoline engines may be accomplished either through suitable right angle gears or belts.



A Fairbanks-Morse Figure 6310 Niagara propeller pump designed for belted service.



A typical large capacity propeller pump, driven by a Fairbanks-Morse vertical hollow shaft motor.

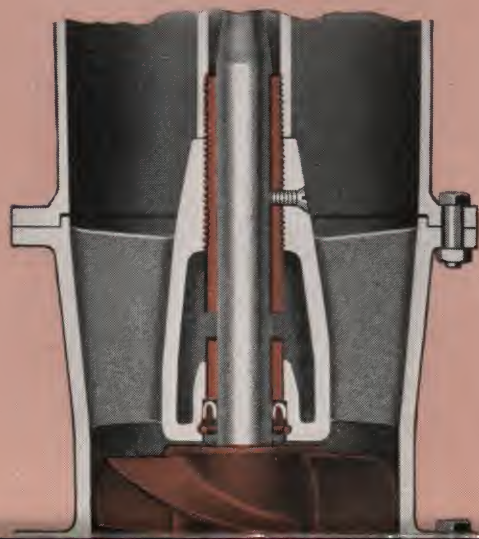
MOTOR—Fairbanks-Morse vertical hollow shaft motors are generally used for direct connection to Figure 6310 Niagara propeller pumps. Downward thrust of the rotating element is carried by a thrust bearing built into the motor. The lineshaft extends up through the motor shaft and is secured at the top.

LINESHAFT—A special grade of shafting steel having exceptionally high torsional strength is used in the lineshaft. The upper end of the lineshaft is secured to a special disengaging clutch built into the vertical hollow shaft motor. Correct rotation

LUBRICATION—The upper pump bearing and all lineshaft bearings receive an ample supply of lubricant from an oiler secured by a bracket to the motor base. While hand operated oilers are regularly furnished, solenoid oilers are available for automatic lubrication. Oil enters the top of the shaft tube and flows downward by gravity, lubricating all bearings. The grease lubricated lower pump bearing is packed with a sufficient quantity of lubricant for a long period of operation.

LINESHAFT BEARINGS—Generous bearings of high quality phosphor bronze are enclosed within the shaft tube to hold the lineshaft in its proper vertical position. Unusually close spacing and accurate alignment of these bearings prevents shaft whip and vibration. A constant supply of oil flowing from the oiler into the shaft tube top insures positive lubrication at all times.

SHAFT TUBE—The steel shaft tube encloses the lineshaft from the top of the pump bowl through the base plate. It is held rigidly in position by a shaft tube tension nut which bears against the upper surface of the base plate. A shaft tube cap is tapped for lubricating oil connection. Properly spaced guide bearings assure smooth and vibrationless operation.

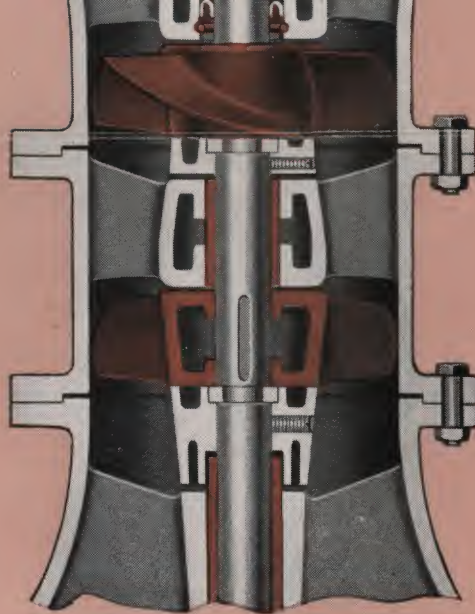


of the shaft and propeller is thus assured at all times.

DISCHARGE COLUMN—The heavy sheet steel discharge column supports the pump bowls and serves as a discharge line. A corrosion-resisting coating of cold asphaltum is applied to both outer and inner surfaces.

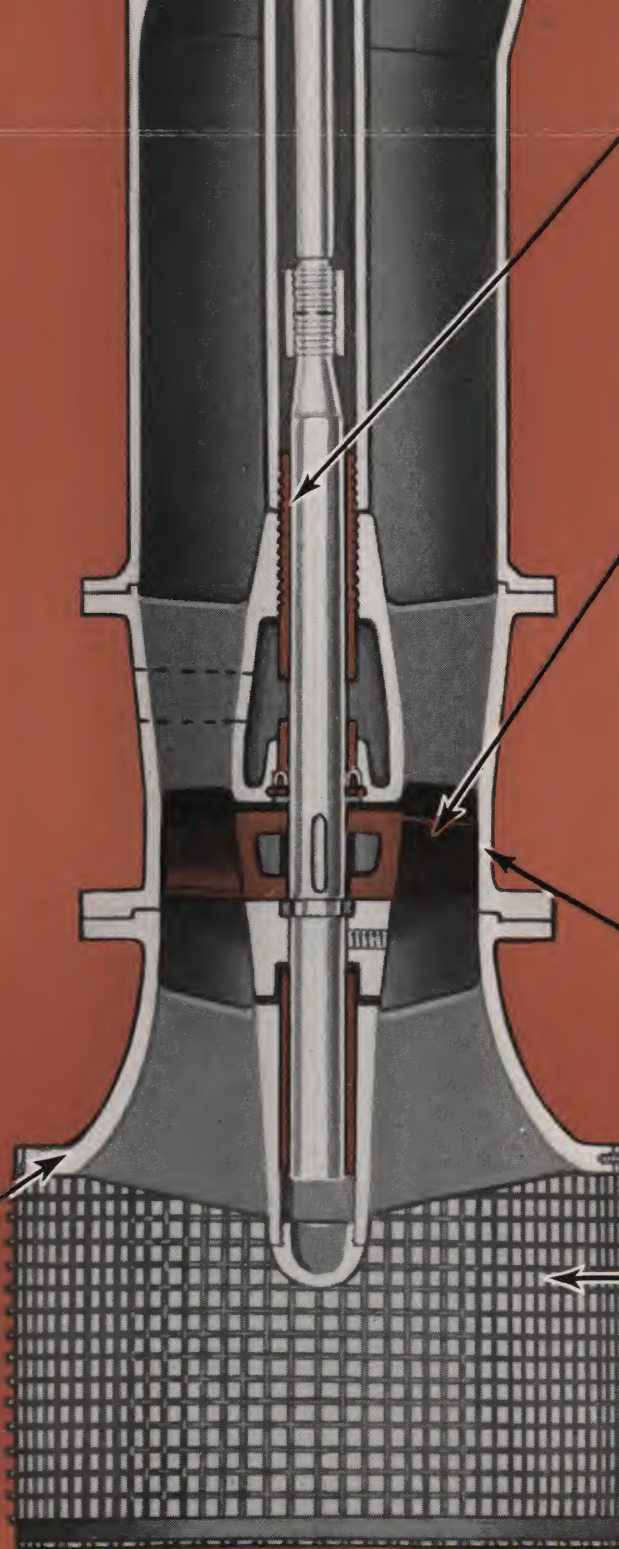
DISCHARGE ELBOW—The long radius discharge elbow is made of heavy sheet steel with welded sections. The electrically welded discharge flange conforms to A. S. M. E. Standards for low pressure fittings. Designed for highest efficiency, the smooth, streamlined contours of the elbow permit water to be discharged with a minimum of loss due to eddies and turbulence.

PROPELLER SHAFT—The stainless steel propeller shaft is of ample size to transmit maximum power at low working stresses. Designed with extra length to insure permanent shaft alignment, the accurately machined phosphor bronze bearings in the pump bowl are positively lubricated by oil from the shaft tube. Bearing support of the shaft both above and below the propeller insures vibrationless operation.



MULTI-STAGE BOWL ASSEMBLY—Where service requirements demand higher heads than obtainable with single stage pumps, additional bowl assemblies can be added. Top and bottom bowls of these multi-stage pumps are identical with single stage units. Series or intermediate bowls with their propellers and series bearings are added to obtain the additional head desired.

BOTTOM BOWL—Designed with a wide belled suction opening to permit unimpeded water entrance, the cast iron bottom bowl is provided with streamlined entrance guide vanes. The accurately bored hub forms a support for the lower bearing.



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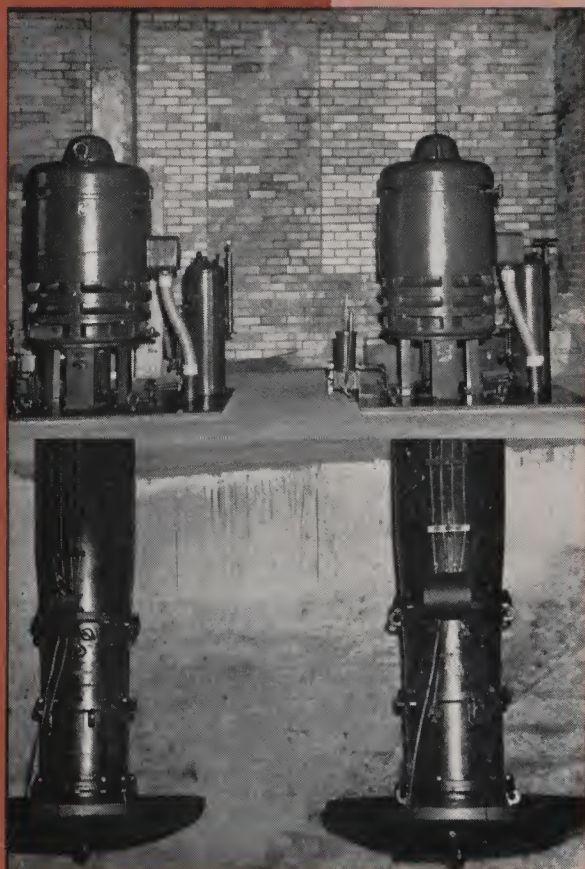
PROPELLER—The cast bronze propeller is secured firmly to the shaft by means of a stout key and locking collar. A sand collar covers the locking collar, and prevents the entrance of sand or grit into the lower pump bearing. The desirable combination of proper airfoil design, correct balance and smooth finish qualifies this propeller for excellent pump performance.



TOP BOWL—The cast iron top bowl is provided with streamlined diffusion vanes to properly direct the flow of water into the discharge column. An accurately bored bearing housing supported by the diffusion vanes carries the upper pump bearing. A "U" leather seal is provided above the propeller to prevent the entrance of water and grit into the upper bearing.

SUCTION STRAINER—Foreign materials are prevented from entering the pump by a heavy galvanized strainer. This basket type strainer is rigidly constructed for long life. It is bolted securely to the bottom bowl.

representative installations



Shown at left are two of the thirty-eight Fairbanks-Morse pumps installed at Portsmouth and New Boston, Ohio, for flood control. The upper picture shows the 100 HP vertical hollow shaft motors that drive the pumps. The lower picture shows the suction bowls in wet pit installation.



Twelve propeller pumps are installed at Lerma, Mexico to furnish Mexico City with drinking water. The six pumps shown in the illustration above can supply the Lerma aqueduct with a total of a hundred million gallons a day.

For protection against storms and flood waters, one 36-inch and four 54-inch Fairbanks-Morse propeller pumps are installed at Corpus Christi, Texas. The 54-inch units are driven by right-angle gears and Fairbanks-Morse diesel engines, as shown in the illustration. The pumps have a combined capacity of 325,000 GPM.

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5400—Vertical and
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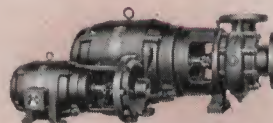
5400K—Vertical and
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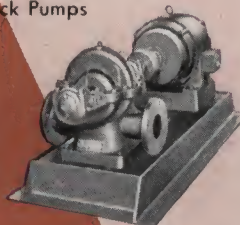
5460—Paper
Stock Pumps



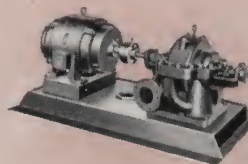
5550—Built-together
Centrifugal Pumps



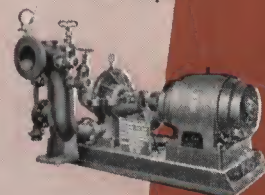
5700—Vertical and
Horizontal Angle
Flow Pumps



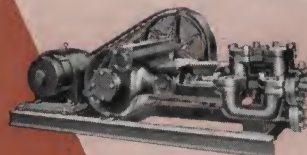
5800—Split-case
Centrifugal Pumps



5900—Multi-stage
Centrifugal Pumps



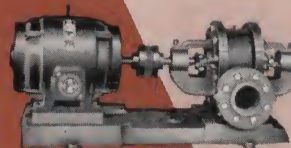
5800F—Centrifugal
Fire Pumps



6100—Duplex
Power Pumps



6200—Duplex
Steam Pumps



6800—Westco Peripheral
Turbine Type Pumps

6310—Vertical
Propeller Pumps



6900—Oil or
Water Lubricated
Deep Well
Turbine Pumps



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5430—Vertical
Coupled Sewage
and Trash Pump



—Vertical and
Horizontal Angle
Pumps



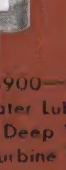
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Fire Pumps



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